AMENDMENTS TO THE CLAIMS

1. (Original) An echo canceller adapted for use in a communication system that includes a hybrid circuit, said echo canceller comprising:

an adaptive digital filter that generates an estimated echo signal $\hat{z}[k]$ in response to (i) a sampled input data sequence $x[k]$ and (ii) an error signal sequence $e[k]$ indicative of the difference between a near end signal sequence $y[k]$ and the estimated echo signal $\hat{z}[k]$, wherein said adaptive digital filter computes filter coefficients based upon said error signal sequence $e[k]$ using a stochastic quadratic descent estimator that employs a dynamically adjustable step size vector $\underline{\mu}[k]$ and said adaptive digital filter comprises means for computing said dynamically adjustable step size vector $\underline{\mu}[k]$ of the form $\underline{\mu}[k+1] = \underline{\mu}[k] + \alpha\underline{\phi}[k] \bullet \underline{x}[k]e[k]\,|_{\mu_{\min}}^{\mu_{\max}}$, where $\underline{\phi}[k+1] = \underline{\phi}[k] \bullet (\underline{1} - \underline{\mu}[k] \bullet \underline{x}^2[k]) + e[k]\underline{x}[k]$ and α is a scalar.

2. (Original) The echo canceller of claim 1, wherein said stochastic quadratic descent estimator comprises a least mean square (LMS) estimator that includes said dynamically adjustable step size.

3. (Withdrawn) An echo canceller adapted for use in a communication system that includes a hybrid circuit, said echo canceller comprising:

an adaptive digital filter that generates an estimated echo signal $\hat{z}[k]$ in response to (i) a sampled input data sequence $x[k]$ and (ii) an error signal sequence $e[k]$ indicative of the difference between a near end signal sequence $y[k]$ and the estimated echo signal $\hat{z}[k]$,

wherein said adaptive digital filter computes filter coefficients based upon said error signal sequence $e[k]$ using a stochastic quadratic descent estimator that employs a dynamically adjustable step size $\mu[k]$ and said adaptive digital filter comprises means for computing said dynamically adjustable step size $\mu[k]$ of the form $\mu[k+1] = \mu[k] + \xi[k]$, where $\xi[k]$ is an empirically derived set of values .

4. (Withdrawn) The echo canceller of claim 3, wherein said stochastic quadratic descent estimator comprises a least mean square (LMS) estimator that includes said dynamically adjustable step size.

5. (Original) An integrated circuit that includes an echo canceller adapted for use in a communication system that includes a hybrid circuit that provides a return signal, said echo canceller comprising:

an adaptive digital filter that generates an estimated echo signal $\hat{z}[k]$ in response to (i) a sampled input data sequence $x[k]$ and (ii) an error signal sequence $e[k]$ indicative of the difference between a near end signal sequence $y[k]$ and the estimated echo signal $\hat{z}[k]$, wherein said adaptive digital filter computes filter coefficients based upon said error signal sequence $e[k]$ using a stochastic quadratic descent estimator that employs a dynamically adjustable step size vector $\underline{\mu}[k]$ and said adaptive digital filter comprises means for computing said dynamically adjustable step size vector $\underline{\mu}[k]$ of the form $\underline{\mu}[k+1] = \underline{\mu}[k] + \alpha\underline{\phi}[k] \bullet \underline{x}[k]e[k]\,|_{\mu_{\min}}^{\mu_{\max}}$, where $\underline{\phi}[k+1] = \underline{\phi}[k] \bullet (\underline{1} - \underline{\mu}[k] \bullet \underline{x}^2[k]) + e[k]\underline{x}[k]$ and α is a scalar.

6. (Original) The integrated circuit of claim 5, wherein said stochastic quadratic descent estimator comprises a least mean square (LMS) estimator that includes said dynamically adjustable step size.

7. (Original) A digital signal processor that includes executable program instructions to provide an echo canceller adapted for use in a communication system which includes a hybrid circuit that provides a return signal, said echo canceller comprising:

an adaptive digital filter that generates an estimated echo signal $\hat{z}[k]$ in response to (i) a sampled input data sequence $x[k]$ and (ii) an error signal sequence $e[k]$ indicative of the difference between a near end signal sequence $y[k]$ and the estimated echo signal $\hat{z}[k]$, wherein said adaptive digital filter computes filter coefficients based upon said error signal sequence $e[k]$ using a stochastic quadratic descent estimator that employs a dynamically adjustable step size vector $\underline{\mu}[k]$ and said adaptive digital filter comprises means for computing said dynamically adjustable step size vector $\underline{\mu}[k]$ of the form $\underline{\mu}[k+1] = \underline{\mu}[k] + \alpha\underline{\phi}[k] \bullet \underline{x}[k]e[k]\big|_{\mu_{min}}^{\mu_{max}}$, where $\underline{\phi}[k+1] = \underline{\phi}[k] \bullet (\underline{1} - \underline{\mu}[k] \bullet \underline{x}^2[k]) + e[k]\underline{x}[k]$ and α is a scalar.

8. (Withdrawn) The echo canceller of claim 3, wherein said stochastic quadratic descent estimator comprises a least mean square (LMS) estimator that includes said dynamically adjustable step size.